CLAIMS

What is claimed is:

1. A drum washing machine, comprising:

a water tub to contain water therein;

a rotary drum included in the water tub and comprising:

a rotating axis of the rotary drum is inclined relative to a horizontal axis at a predetermined first angle of inclination allowing an inlet opening of the rotary drum to be directed upward and forward,

a drain hole provided on the rotary drum at a position adjacent to the inlet opening, and

an internal surface of the rotary drum being inclined relative to the rotating axis of the rotary drum at a predetermined second angle of inclination so as to guide the water to the drain hole, prior to discharging the water from the rotary drum to an outside of the rotary drum through the drain hole;

a drive unit to drive the rotary drum; and

a water circulation unit to feed the water from the water tub into the rotary drum.

2. The drum washing machine of claim 1, further comprising a heater provided in a lower portion of the water tub which heats the water.

3. The drum washing machine of claim 2, further comprising a drain unit having a drain pipe connected to the lower portion of the water tub and a drain pump mounted to an intermediate portion of the drain pipe.

4. The drum washing machine of claim 3, wherein the water circulation unit comprising:

a control valve mounted to the drain pipe of the drain unit at a position around an outlet of the drain pump to control a flow direction of the water flowing from the drain pump;

a water circulation pipe extending from the control valve to the inlet opening of the rotary drum; and

a spray nozzle mounted to an outlet of the water circulation pipe to spray the water into the rotary drum.

5. The drum washing machine of claim 1, further comprising a drain unit having a drain pipe connected to a lower portion of the water tub and a drain pump mounted to an intermediate portion of the drain pipe.

6. The drum washing machine of claim 1, wherein the water circulation unit comprising:

a control valve mounted to the drain pipe of the drain unit at a position around an outlet of the drain pump to control a flow direction of the water flowing from the drain pump;

a water circulation pipe extending from the control valve to the inlet opening of the rotary drum; and

a spray nozzle mounted to an outlet of the water circulation pipe to spray the water into the rotary drum.

7. The drum washing machine of claim 1, wherein the rotary drum comprising:

a rear part which is closed and coupled to a rotating shaft at a center of the rear part;

a front part spaced apart from the rear part, with the inlet opening provided at a central portion of the front part, and the drain hole provided on an edge of the inlet opening of the front part; and

a sidewall part which is closed and extends between the rear part and the front part wherein an inner diameter of the sidewall part increases along a direction from the rear part to the front part to allow an internal surface of the sidewall part to be inclined.

8. The drum washing machine of claim 7, wherein the drain hole comprising a plurality of rows of drain holes provided around an edge of the front part of the rotary drum.

9. The drum washing machine of claim 1, wherein the rotary drum comprising:

a rear part which is closed and coupled to a rotating shaft at a center of the rear part;

a front part spaced apart from the rear part, with the inlet opening provided at a central portion of the front part; and

a sidewall part which is closed and extends between the rear part and the front part wherein an inner diameter of the sidewall part increases along a direction from the rear part to the front part to allow an internal surface of the sidewall part to be inclined, the sidewall part having the drain hole which is provided on an edge of the sidewall part adjacent to the front part.

10. The drum washing machine of claim 1, wherein the rotary drum comprising:

a rear part, with a rotating shaft coupled to a center of the rear part;

a front part spaced apart from the rear part, with the inlet opening provided at a central portion of the front part; and

a sidewall part extending between the rear part and the front part wherein an inner diameter of the sidewall part increases along a direction from the rear part to the front part to allow an internal surface of the sidewall part to be inclined, the sidewall part being connected to the front part along a rounded junction surface, with the drain hole formed on the rounded junction surface.

11. A drum washing machine, comprising:

a water tub to contain water therein; and

a rotary drum installed in the water tub by use of a rotating shaft and comprising:

an internal surface of the rotary drum being inclined relative to a rotating axis of the rotary drum so that an inner diameter of the rotary drum increases along a direction from a rear part coupled to the rotating shaft to a front part having an inlet opening, the rotary drum being closed around a sidewall part thereof, and

a drain hole being provided on the rotary drum at a position adjacent to the inlet opening.

12. A drum washing machine, comprising:

a water tub to contain water therein;

a rotary drum included in the water tub to be inclined so that a front part of the rotary drum having an inlet opening is positioned to be higher than a rear part of the rotary drum coupled to a rotating shaft and comprising:

an internal surface of the rotary drum being inclined so that an inner diameter of the rotary drum increases along a direction from the rear part to the front part, and

a drain hole provided on the rotary drum at a position adjacent to the inlet opening of the front part;

a drive unit to drive the rotary drum; and

a water circulation unit to feed the water from the water tub into the rotary drum.

13. The drum washing machine of claim 9, wherein the drain hole comprising a plurality of drain holes provided on the edge of the sidewall part adjacent to the front part of the rotary drum.

14. The drum washing machine of claim 10, wherein the drain hole comprising a plurality of drain holes provided on the edge of the sidewall part adjacent to the front part of the rotary drum.

15. The drum washing machine of claim 11, wherein the drain hole comprising a plurality of drain holes provided on the edge of the sidewall part adjacent to the front part of the rotary drum.

16. The drum washing machine of claim 12, wherein the drain hole comprising a plurality of drain holes provided on the edge of the sidewall part adjacent to the front part of the rotary drum.

17. The drum washing machine of claim 1, further comprising:

a detergent supplying unit; and

a water supplying unit installed in a cabinet above the water to respectively feed each of a detergent and water into the water tub.

18. The drum washing machine of claim 17, wherein the detergent supply unit is placed at a front part of the cabinet to allow the user to feed the detergent into the water tub.

19. The drum washing machine of claim 17, wherein the water supply unit comprising:

a first water feed pipe which extends from an external water supply pipe to the detergent supply unit;

a second water feed pipe which extends from the detergent supply unit to the water tub; and

a control valve which is mounted to an intermediate portion of the first water feed pipe to control a flow of the water to be fed into the water tub.

20. The drum washing machine of claim 2, wherein the heater is installed in a heater holding part in which a predetermined amount of water is collected to a level to allow the heater to be submerged into the water.

21. The drum washing machine of claim 21, wherein the heater holding part has a pan-shaped appearance.

22. The drum washing machine of claim 5, wherein the drain pipe comprising:

a first drain pipe connected to a drain port provided at the lower portion of the water tub; and

a second drain pipe which extends from an outlet of the drain pump and allows water to be drained to an outside of a cabinet.

23. A method of washing laundry in a drum washing machine, the method comprising:

feeding water into a water tub;

stopping the water supplied into the water tub after a predetermined amount of water is fed into the water tub;

holding the water in a heater holding part provided at a lower portion of a sidewall part of the water tub prior to feeding the water into a rotary drum;

feeding the water into the rotary drum;

overflowing water from the rotary drum into the water tub when a level of the water in the rotary drum exceeds a height of a drain hole in a lowermost position on the rotary drum;

circulating the water from the water tub to the rotary drum continuously so that the water tub contains a small amount of water therein;

rinsing the laundry; and

spin-drying the laundry.

24. The method of claim 23, wherein the feeding water into the water tub comprising supplying water to a detergent supply unit prior to the water reaching the water tub due to coupling of the detergent supply unit and a water supply unit.

25. The method of claim 23, wherein the holding the water in the heater holding part comprising heating the water to a predetermined temperature using a heater.

26. The method of claim 23, wherein the feeding the water into the rotary drum comprising spraying the laundry contained in the rotary drum with water using a spray nozzle while simultaneously rotating the rotary drum at a low speed.

27. The method of claim 23, wherein the rinsing of the laundry comprising:

spin-drying the laundry wherein the rotary drum is rotated at a high speed and the water is spin-dried out of the laundry in the rotary drum to move radially outward to an internal surface of a sidewall of the rotary drum due to a centrifugal force and is secondarily guided to a plurality of drain holes provided on a front part of a rotary drum and discharged to the outside of the rotary drum through the plurality of drain holes and drained to an outside of a cabinet; and

supplying new water into the water tub to rinse the laundry.